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Information Literacy in Ghanaian Academic Institutions: Case of Kwame Nkrumah University of Science and Technology (K.N.U.S.T), Ghana

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INFORMATION LITERACY IN GHANAIAN ACADEMIC INSTITUTIONS: CASE OF KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (K.N.U.S.T), GHANA

Introduction

Earlier studies dating back to the 90's demonstrate access to virtually unlimited information with the advent of Information Technology (IT). This has led to unforeseen consequences such as forcing a reconsideration of the knowledge, skills and values needed for education and successful living (Postman, 1990). In the contemporary information environment, Postman stated that, there is an abundance of information resources. These information resources cut across various interactive and connective manners irrespective of place and time. However, there are so many issues and challenges encountered by librarians in serving their users especially in academic institutions. Among such challenges are students' inability to quickly locate and effectively use printed and e-resources due to poor search strategies, poor evaluation of the quality, quantity and relevance of sources of information, particularly those made accessible by search engines and issues surrounding the ethical use of the vast information (Al-Aufi, Ali, Al-Azri, & Hamed, 2013).

Information literacy is becoming increasingly important in this contemporary society of rapid technological change of information resources. Bruce (1997) defines Information Literacy "as the ability to access, evaluate, organize, and use information in order to learn, problem-solve, make decisions – in formal and informal learning contexts, at work, at home and in educational settings." It is evident that, individuals face abundant information choices from a variety of sources – both print and electronic. Questions about the quality of information obtained from this wide array of choices, from either the Internet or other multimedia, pose serious threats in terms of the authenticity, validity, and reliability of the information. As a result, special challenges arise in terms of evaluating, understanding, and using information in an ethical and legal manner. According to Tiarniyu (2012), most students in universities lack the sophisticated

skills needed to exploit the library's research potential. Kavulya (as cited in Baro & Keboh 2012) posited that, students waste a lot of time going to the wrong sources and making inefficient use of retrieval tools. This happens because students are not accustomed to exploring, discovering, and retrieving information from library resources. To solve this problem, the staff of a library, need training to commence information literacy projects like teaching of appropriate skills of which Kwame Nkrumah University of Science and Technology (KNUST) has now started.

Statement of the Problem

The KNUST library has variety of resources to satisfy students' information needs. The challenge remains with students' lack of knowledge on the available information sources at their disposal and skills in locating and evaluating information. This challenge impedes the effective use of information resources hence, the under- utilization of these resources. Ignoring the above problems means ignoring the activities that could help students improve upon the ways in which they could effectively use the KNUST library resources. This consequently would affect negatively their learning outcomes for academic success. It is against this background that this research investigates the impact which the teaching of the Information Literacy course has on students' skills in the effective and efficient use of the various library resources available to KNUST.

This study is intended to examine the Information Literacy competence of first year students of Kwame Nkrumah University of Science and Technology (KNUST) who have taken the Information Literacy skills course, and the value of the course as a tool for promoting lifelong learning and critical thinking among students. Specifically, it sought:

- to determine how the information literacy course has affected students' knowledge on the various formats and forms of information resources found in the KNUST library.

- to find out students' proficiency in using appropriate tools for searching electronic information.
- to determine how students evaluate information on the internet.
- ascertain students' knowledge about legal and ethical uses of information such as copyright and plagiarism.
- to find out students' perceptions of the Information Literacy skills course taught at KNUST.

Literature Review

Information Literacy has existed in the literature for many years and various contributions have been made to the literature over the years. The content of the concept has focused on the skills needed to use effectively needed information. Interest in this concept has widened from academic institutions, through health sectors to the workplace. Carbo (1997) identifies Mr. Paul Zurkowski (the then president of the United States of America Information Industry Association), as the one who introduced the concept in the 1970s when submitting a proposal to the National Commission on Libraries and Information Science. Prior to the introduction of the concept, phrases such as library instruction, bibliographic instruction and user/ reader education were used (Rader, 1990).

UNESCO's Information for All Programme (IFAP), based on Alexandria Proclamation (2005) more recently defined information literacy as the capacity of people to:

- Recognise their information needs
- Locate and evaluate the quality of information
- Store and retrieve information
- Make effective and ethical use of information, and apply information to create and communicate knowledge (Catts & Lau 2008).

Concisely, characteristics of an information literacy as identified in an institution is based on a model or approach which is usually linked to the objectives of the institution.

Thompson (2003) on the other hand, defines Information Literacy as the ability to identify, locate, evaluate, organize, and effectively use information to address issues or problems at hand that face individuals, communities, and nations. Owusu-Ansah (2003) conducted a study into Information Literacy as a Concept and the Controversies Surrounding It and recommended putting a halt to defining the term and just getting on with the business of providing information literacy.

Various associations, researchers, and organisations have come out with complex mix of characteristics defining who an information literate person is. For example, the Californian University Information literacy fact sheet (2000) based their attributes of an information literate person on that of the American Library Association (2000) as an individual, who is able to:

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information and access and use information ethically and legally.

However, in a broader context, information literate people have been described as those who 'know when they need information, and are then able to identify, locate, evaluate, organize, and effectively use the information to address and help resolve personal, job related, or broader social issues and problems (Bundy, 2004).

“Students utilize commercial and social electronic capabilities to inform all their activities, including research and these are often embraced without full knowledge of their limitations. Libraries and the academy can provide more authentic and certain information; however, the other crucial role is to provide an environment of integrated information literacy that demonstrates the value of the scholarly process. Information literacy requires a rebirth as a discipline based upon critical reflection on the nature of information itself” (Shannon & Kirilka, 2006, p. 342).

Dadzie (2011) indicates that, indeed, the attractiveness and omnipresence of all sorts of information on the World Wide Web poses a danger and that, students will uncritically use whatever is convenient to them rather than considering its authentic sources. She further argued that, students sometimes perceived no difference between another student’s papers published on the web and a scholarly journal article available just a few clicks away via the same computer.

Activities in an environment marked by personal computers and electronic information calls for librarian acting as role models and mentors to establish the need for information literacy serving as a guide to students’ knowledge creating. When their source of information is authoritative, they would have authentic information to construct credible arguments.

It is also suggested that, to evaluate information on the internet, one must be mindful of the **authority, objectivity, authenticity, reliability, timeliness, relevance, and efficiency of the content.** Students need to learn to evaluate the quality of information they find on the web as well as other information resources such as books, magazines, CD-ROM, and television (Johnson & Lamb, 2003). However, Asher & Duke (2010) presenting a paper on Information

Literacy and how first year students evaluate knowledge, needs and Instruction found out that, student's exhibit difficulty in evaluating sources of information.

The concept of information ethics because of the abundant access to information via the internet, embraces issues such as intellectual freedom, privacy, intellectual property, and cyber plagiarism in academic institutions. Throughout the years, UNESCO through its initiative in the form of INFOethics conferences have approved of information ethics as key to the use of information by students in higher education. There have been numerous conferences in Europe and America to deliberate expansively on this topic and some of these efforts include , the World Summit on the Information Society, facilitated by UNESCO, and the 'Ethical Dimensions of the Information Society', which is being followed up by organisations such as IFLA. In relation to African countries to the concept of information ethics, the same UNESCO and the South African government, in August 2009, sponsored training workshops in Sub-Saharan Africa and was held in South Africa (UNESCO, 2009)

Consequently information ethics, though not fully acknowledged as a stand - alone course taught at higher institutions is not new but familiar to students since some programmes such as Information Studies, Communication Studies, Business Administration, Law, and Computer Science teach it (Dadzie, 2011). The challenge remains with whether all students fully understand plagiarism and copyright infringement. Hansen Stith, & Tesdell (2011) see this academic dishonesty as plagiarism and define it as the act of taking and using another person's (thoughts, writing, and invention) as one's own. Some fairly have an idea of what plagiarism is, and so copy and paste smaller portions of peoples' work.

Lwehabura (2008) in his study in Tanzanian universities indicated, lack of clear information literacy policy in the country, inadequate time on the part of librarians to teaching information

literacy as a stand-alone programme on a voluntary basis, and non-involvement of teaching staff in promoting the action are some challenging factors for effective impacting adequate IL skills to students. Lastly, Idiodi (2005) mentions that, disruptions in the academic calendar, lack of space, and inadequate support from their parent institution constitute the challenges in teaching information literacy course in Nigeria.

Methodology

The researchers employed a cross-sectional survey method for this study. They used a quantitative approach in collecting data from the students. To this effect, copies of questionnaire were administered to the students after completing the course in their second semester. There are six colleges in KNUST. However, not all the Colleges were covered for this study. The College of Science was selected as the case and the study was further limited to be applicable to only first year undergraduate students in seven departments of the college. This was because; they are the only undergraduate students pursuing the Information Literacy course. All first year students of the College of Science reading Biochemistry, Food Science Technology, Biological Sciences, Environmental Sciences, Mathematics, Physics, Meteorology and Climate Change who were 675 in number. A sample size of approximately one hundred and thirty six (136) students from the college of Science was used. Convenience sampling was used for the students. Using appropriate distribution sample formula (as shown below) the proportionate sample size for each department was determined for the students.

Where Ps = proportionate sample,

$$Ps = \frac{\text{Total Class Size}}{\text{Total number of Students}} \times \text{Sample size}$$

Table 1: Target Population

Departments	Population	Sample Selected
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Physics	90	18
Biology	209	42
Biochemistry	81	16
Food Science	48	10
Meteorology	44	9
Environmental Science	99	20
Mathematics	104	21
Total	675	136

Source: Field study (2016)

It was noted during the pre-test of the questionnaire that, response rate was higher if people in authority assisted in the distribution. For this reason, the researcher sought the assistance of the college librarian in directly administering the questionnaire prior to the beginning of lectures in their lecture halls. Out of the 136 questionnaire administered, 136 were retrieved giving a response rate of 100%. The Statistical Package for Social Sciences (SPSS) version 20 was used in analysing the data. With this tool containing most statistical formulas and procedures, the results were summarized in order to draw conclusions reported in the form of frequency distributions; percentages and cross tabulations.

Analysis

Gender of Respondents

Out of 136 copies of questionnaires administered it was found that, 81(59.6%) were males while the remaining 55(40.4%) of the respondents were females. This was done to ensure that the study was not skewed to any particular gender and to include views from both gender so as to present a fair demographic result.

Effect of Information Literacy Course on students

To find out students' progress towards the Information Literacy skills course, students were asked to indicate their level of agreement on the variables on a Likert scale of 1-5. From Table 2 (below), 67% of the respondents strongly agreed and 13% agreed that they find it difficult to formulate a topic or research question. This indicates that 80% of respondents are unable to create their own research topic given the opportunity to. In terms of locating and retrieving information, 64% and 21% strongly agreed and agreed respectively that, they had difficulty in locating and retrieving the information they needed. Also, respondents indicated that, it's a problem evaluating the accuracy and validity of the information they find, and also they find it difficult knowing how to properly cite references for their course papers with their respective totals of agreement being 77%, and 72%. Finally, majority (80%) students strongly disagreed to the fact that, organizing and using the information they found for their assignments was a problem as shown.

Table 2: Effect of IL Course on students

Variables	SA	%	A	%	N	%	D	%	SD	%
difficult to formulate a topic or research question	91	67	18	13	11	8	10	7	6	4
difficulty locating and retrieving the information I need	87	64	29	21	15	11	5	4	0	0
problems evaluating the accuracy and validity of the information I find	80	59	25	18	2	1.4	19	14	10	7
organizing and using the information I found for my assignments	15	11	16	12	7	5	30	22	68	50
difficulty knowing how to properly cite references for my course papers	78	57	20	15	8	6	15	11	15	11

SA = strongly agree A = agree N = neutral
D = disagree SD = strongly disagree

The ability and confidence of students to use a particular library resource is not limited to that particular library alone and therefore he/she should use other library's resources with comfort. In view of this, students were asked in a 'YES' or 'NO' question to tell whether they use other library's resources apart from that of KNUST and the responses showed majority of the students answered 'no'(80.8%), whereas a few answered 'yes' (17.7%).

In a follow up question, those who answered 'yes' were asked to indicate whether they were able to use the library resources in locating what they wanted effectively and in comfort. The responses showed, majority 20(83%) said 'no' meaning they encountered difficulties in using other library's resources. The remaining answered 'yes,' which was not very significant in number.

Sources of Information

Further, students' knowledge of the differences between primary and secondary sources of information were sought and most 121(89%) of the students mentioned Bibliographies, Biographical works, Dictionaries, Encyclopaedias, and Textbooks as primary sources of information while a few 15(11%) got it right when they answered that primary sources of information included photographs and letters. On the other hand, half of the students got it right on the secondary sources of information.

Proficiency in Using Electronic Searching Tools

This section of the analyses queried students on their knowledge on doing an electronic search and the strategy they used in their search. Conducting a successful search for scholarly sources

is a complex process that requires numerous steps and considerable knowledge of the discipline and its particular jargon.

Ability to Access the Library E-Resources Independently

As part of determining the ability of respondents in accessing the KNUST Library E-Resources independently or dependently, a question requiring respondents to answer ‘yes’ or ‘no’ was asked. Thus, 67(49.3%) of the students indicated ‘yes’ to show that, they are able to access the library e-resources independently, whereas 59(43.4%) answered ‘no’, meaning they depended on others to access the library e-resources. 10(7.4%) of the respondents were silent on this question.

For those who indicated ‘No’, they might have encountered some problems and therefore the researcher inquired with a follow up question for the reasons they answered ‘No’ to the above. Inadequate Computers, Slow Internet Speed, and Inadequate Training were cited as the problems they encountered for their inability to access the library e-resources independently. See Table 3.

Table 3: Problems Encountered

Items	Frequency	Percent
Inadequate Computer	13	22
Slow Internet Speed	27	45.7
Inadequate Training	19	32

Source: field study, 2016

Online Databases

An online database is a [database](#) accessible from a network, including the [internet](#). It differs from a local database, held in an individual computer or its attached storage, such as a CD. Whether students are able to access the e-resources dependently or independently, students still access the library’s e-resources for their assignments. Therefore, students were asked to indicate which online database they use for assignments. Results showed that, Google scholar

emerge as the most 50(36.8%) used e-resources for assignments followed by Science Direct, HINARI, EBSCO, and Wiley Online. However, 42(30.9%) indicated none of the e-resources. This implies that majority of the students at least use an e-resource for assignments. See Table 4.

Table 4: Online Database used

Responses	Frequency	Percent
Science Direct	18	13.2
HINARI	4	2.9
Wiley Online	3	2.2
EBSCO	3	2.2
FreeFullPDF	3	2.2
Google Scholar	50	36.8
None Of Them	42	30.9
No response	13	9.6
N	=136	

Source: field study, 2016

Use of Boolean Operators

To find out how effectively respondents search for information in electronic resources, respondents were asked whether they use Boolean operators in accessing electronic resources. According to the results, majority of the respondents 87(65.4%) indicated that ‘no’ they do not use Boolean operators in accessing the e-resources whereas, a little below a quarter 38(27.9%) answered ‘yes’ they use Boolean operators. Since majority of respondents do not use Boolean operators, the implication therefore is that probably the students are too new to be educated on the complicated use of such tools since they are level hundred students. Particularly for the 38 respondents who indicated ‘yes’ that, they use Boolean operators as a search tool for better results in electronic search strategies, a follow up question was asked for them to indicate which of the operators they use most often. The results showed that, a few 24(17.6%) and 20(14.7%) used the operators ‘AND’ and ‘OR’ in searching the e-resources respectively more often than the use of the operator ‘NOT’ 3(2.2%). This is demonstrated in Table 5.

Table 5: Type of Boolean Operator used often

Responses	Frequency	Percent
AND	24	17.6
NOT	3	2.2
OR	20	14.7
No response	89	65.4
N	=136	

Source: field study, 2016

To further test students' knowledge of how perfect they were in using the Boolean operators particularly those who answered that they used the 'AND' and 'OR' operators often, explanation of the meanings of 'AND', 'OR' and NOT in searching for information, was sought from the students. They were asked which of the operators 'AND' or 'OR' narrows a search. Surprisingly, almost all the 38 students got the answer wrong with these logics. 31(22.8%) answered 'OR' narrows a search more than the logic 'AND' 7(19.4%)

Use of keywords

Among the abilities of an Information Literate student is for him/her to identify keywords in a sentence. For this reason, respondents were asked in a 'yes' or 'no' question, whether they could identify keywords in a sentence. For those who answered 'yes' 91(67%), a sample sentence was given for them to fish out the keywords. This sentence was "we need to be more innovative in our energy sectors because of the rising demands of power supply." From this sentence almost all the students were able to identify one or more keyword such as power supply, energy sector, demands for power supply and so on. See Table 6.

Table 6 Use of keywords

Responses	Frequency	Percent
Yes	91	67
No	38	27.9
No response	7	5.1
Total	136	100.0

Source: field study, 2014

Bibliographic Citation

A bibliographic citation (also known as a reference) has two parts; the full reference and the text reference. The full reference appears at the end of your thesis or assignment, and contains sufficient information for readers to obtain the works that one has used. The text reference on the other hand, indicates in the text where a particular piece of information could be attributed to an author, and enables the reader to find the full reference from the listing at the end of the work. In view of this, students were asked to indicate whether they use bibliographic citation or reference to locate and retrieve a specified journal article when doing internet searches. The responses showed that majority 89(65.4%) of the respondents answered ‘no’, they do not use bibliographic citations or references to locate and retrieve a specified journal article when doing an internet search. A few, 35(25.7%) indicated ‘yes’, meaning they use bibliographic citation to locate and retrieve a specified journal article when doing an internet search. This further affirms that, the knowledge of information literacy by students of KNUST is still limited. Table 7 reveals the findings.

Table 7: Use of Bibliographic Citations

Responses	Frequency	Percent
YES	35	25.7
NO	89	65.4
No response	12	8.8
Total	136	100.0

Source: field study, 2016

Legal and Ethical Use of Information

According to the American Library Association (2000) an information literate person should be able to understand the economic, legal, and social issues surrounding the use of information, access and use information ethically and legally. Thus, respondents’ views and knowledge of the legal and ethical use of information were sought with regards to plagiarism, copyright law and acknowledgement of sources.

Plagiarism and Academic Dishonesty

Knowledge of Information literacy illuminates students mind to consider plagiarism as an academic dishonesty and so in a ‘Yes’ and ‘NO’ question, students of KNUST were asked to indicate whether they consider plagiarism as an academic dishonesty or not. According to the results, majority 96(70.6%) were of the view that plagiarism is surely an academic dishonesty. Surprisingly, some 33(24.2%) were of the view that plagiarism is not an academic dishonesty. See Table 8.

Table 8: Plagiarism an Academic Dishonesty		
Responses	Frequency	Percent
YES	96	70.6
NO	33	24.2
No response	7	5.1
Total	136	100.0

Sources: field study, 2016

Knowledge of Breach of the Copyright Law

On legal and ethical use of information, students’ views were sought on issues relating to the copyright law of Ghana. Students from different departments had divergent views on what cases they considered an infringement on the copyright law of Ghana especially concerning issues of photocopying. The responses from the students indicated that a greater proportion 65(47.4%) considered infringement on the copyright law of Ghana whilst photocopying an entire material. A significant proportion 32(23.5%) did not have an idea of the issue of the copyright law of Ghana related to photocopying. However, the remaining indicated that seeking permission from authors, photocopying just a page, and photocopying a full chapter are infringements on copyright law of Ghana in relation to photocopying. Table 9 demonstrates this better.

Table 9: Infringement of the Copyright Law in Ghana

Responses	Frequency	Percent
Seeking Permission From Authors	7	5.1
Photocopy Just A Page	19	14.0
Photocopy A Full Chapter	10	7.4
Photocopy The Entire Material	65	47.8
Not Really Sure	32	23.5
No response	3	2.2
Total	136	100.0

Source: field study, 2016

Acknowledging Sources of information

Using someone's work without acknowledging the source is not considered an attribute of an information literate person. When respondents were asked whether they acknowledge their information sources, almost half of the respondents (47.8) indicated 'yes' meaning, they use other people's work and acknowledge the sources, while almost half of the students (49.3) also indicated that they use people's works without acknowledging sources.

A follow up question was posed to those who answered 'NO' to the question above to give reasons for their answers. The responses showed that the reasons student use someone's work without acknowledging were forgetfulness, no time to cite, how to do proper citation, the fact that they would be credited with that work for better grades, among others. Table 10 reveals the findings.

Table 10: Reasons for using someone's work without acknowledging

Responses	Frequency	Percent
Forgetfulness	8	5.9
Credibility with that work	4	2.9
No Time To Cite	17	12.5
How To Do Proper Citation	15	11.0
Others	13	9.6
No response	79	58.1
Total	136	100.0

Source: field study, 2016

Evaluation of Information on the Internet

It was established in the literature of the study that, internet use among students is on the increase in current times. To test how students of the KNUST evaluated information on the internet especially with search engines, a question was posed and Tables 4. 18 and Table 4. 19 illustrate them better below.

Search Engine used

There are many search engines available to students on the web and therefore the researcher inquired from them the very type they used in searching for information. It was revealed that, majority 127(93.4%) of the respondents used Google search engine, followed by an insignificant number 3(2.2%) who indicated they used yahoo very often. See Table 11.

Table 11: Search Engine Used

Responses	Frequency	Percent
Google	127	93.4
Yahoo	3	2.2
No response	6	4.4
Total	136	100.0

Source: field study, 2014

Again, respondents knowledge were sought on how they judge the reliability of an internet material and the responses showed that about a quarter 58(42.6%) of the respondents judge the

reliability of an internet material on the basis that, when the site is rapidly accessible, then materials on it are reliable. Further, a few, 14(10.3%), 5(3.7%), and 8(5.9%) said that ,indication for clear responsibility, date of publication, and the author's very popularity respectively are the ways they used in judging the reliability of an internet material. However, a few of the respondents indicated that, they were not sure what the standard of judgements was, as regards to the internet materials. See Table 12.

Table 12: Judging the Reliability of an Internet Material

Responses	Frequency	Percent
Indication For Clear Responsibility	14	10.3
Site Is Rapidly Accessible	58	42.6
Date Of Publication	5	3.7
Author Is Very Popular	8	5.9
Not Sure	31	22.8
No response	20	14.7
Total	136	100.0

Source: field study, 2014

Discussions

The findings revealed that the information literacy course has not inspired majority of the students to patronize the KNUST online public access catalogue (OPAC) and other library resources because of its complicated use, inadequate knowledge on the use of the print documents as well as on the online databases. The implication is that, IL course has not had much impact on students as one would expect since, their knowledge on the various formats and forms of information resources found in the KNUST library was found to be inadequate irrespective of the fact that, almost all the students mentioned at least a database they use. This was not encouraging enough. This is line with a study of undergraduate research behaviour

showing that, students felt uncomfortable with most library resources, however, they do not ask for help in using the library and spent frustrating hours trying to find information (Valentine, 1993). This could affect poorly the academic career of many students.

The findings revealed that, most of the students are able to access the KNUST library electronic resources independently, though a few were not, due to slow internet speed and inadequate training. In spite of this, all the students mentioned that Google Scholar, Science Direct, HINARI, EBSCO, and Wiley Online are some of the online database they are proficient in using, though Google Scholar emerged as the most used. Further the findings revealed that, appropriate search tools for searching effectively and efficiently (Boolean operators) were not used by majority of the students. The few who indicated they used these tools too did not really understand what the operators 'AND' and 'OR' they stood for, let alone, complicate it with 'NOT'. They interpreted its use in simple English language (thus, 'AND' widens your search). This attests to the suggestion raised by trainer 1 that, there should be an improvement in the course content so as to support lifelong learning. This happens to support Julien's (2002) assertion that, an information literate person today should possess specific online searching skills, which include the ability to select appropriate search terminology, construct a logical search strategy, and evaluate information appropriately.

Again, the finding revealed that, a great majority of the students use Google as a search engine to surf the internet for information. However, student's evaluation of information on the internet was found to be preposterous, meaning, when the site is only rapidly accessible then the information is authentic. Others claimed that, indication for clear responsibility, date of publication and the level of the popularity of the author were among the standards they enumerated. According to Johnson & Lamb (2003) to evaluate information on the internet, one must be mindful of the **authority, objectivity, authenticity, reliability, timeliness, relevance, and efficiency of the content.** This standard by Johnson & Lamb (2003) contradicts the

students' understanding of how information on the internet, should be evaluated. The implication is that it is either the course is not being taught in full or the students themselves did not pay attention in class. Again, this finding supports Asher & Duke (2010) that student's exhibit difficulty in evaluating sources of information.

The findings revealed that, the knowledge of students concerning legal and ethical use of information as far as plagiarism is concerned, is in a dishonest act. Though majority of the students indicated that, plagiarism is an academic dishonesty, they further pointed out their views on the copyright law of Ghana and the findings revealed that students agreed that photocopying an entire material without seeking permission from the authors is an infringement of the copyright law of Ghana. However, some students were honest to admit that they were not really sure what is considered an infringement on the copyright law of Ghana. Again, this finding supports Asher & Duke (2010) who found out that, students do not fully understand issues surrounding the ethical use of information, especially with respect to the meaning and implications of copyright protection, and the practical actions required to correctly observe copyright law.

Furthermore, findings revealed that almost half (49%) of the student respondents, use peoples work without acknowledging the source while another half indicated they acknowledged sources. According to the finding, forgetfulness, time to cite, how to do proper citation and the fact that the originality of the work would be credited to them were among the reasons cited for using someone's work without acknowledging the source. This corroborates Szabo & Underwood (2004) study on whether information Communication Technology is fueling academic dishonesty or not. To them, getting better grades in class and not knowing how to

cite properly are among the reasons why students do not acknowledge the sources of their information.

Conclusion

In conclusion, information literacy skills have not taken the desired firm roots among first year students of KNUST. However, the students have acquired a certain level of information literacy skills which would enable them to be critical thinkers especially in searching for information, and since they are first year students, it is hoped that, by the time they complete their four year courses, they would have gained some appreciable level of information literacy skills. As the awareness of the importance of information literacy continues to grow, librarians must position themselves better to transform the teaching of information Literacy skills.

Recommendations

Based on the findings of the study, and literature of the phenomenon, the following recommendations have been proposed for KNUST:

With the relatively moderate percentage of respondents who answered ‘no’ to the use of Boolean operators, it demonstrates that there is a need for more attention and promotion of information literacy by librarians to the university community at KNUST. More academic staff need to be convinced of the necessity of being information literate in themselves as well as their students, so they tackle the changing world of information, knowledge and wisdom. One best way to do this is university-wide policy on information literacy. There is much potential for collaborative partnerships between librarians and faculty members, and librarians should probe the potential to influence the curriculum for further infusion of information literacy in education. College/ faculty library staff should be given the needed training and facilities to assist users to access e-resources. This will supplement the practical training offered to students.

Several approaches should be developed for teaching and assessing the information literacy skills of the students; this may include one-on-one instruction, more interactive classes, online tutorials, as well as building assignments around research situations. The trainers must also include the use of the e-library resources and computers as well as the Internet and online searching skills. Students should be encouraged to learn more about electronic libraries and information literacy because of the digital era we are. In addition to the above, computer laboratories should be well stocked with enough computers and expanded bandwidth to facilitate downloading, air conditioned to make the environment conducive for reading and research, among others. Finally, the class size should be reduced by dividing them into smaller sizes or enlarge the lectures halls to accommodate the increasing number of students.

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